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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/604,226

07/02/2003

Rajiv Doshi

8391430

1225

30024 7590 03/15/2007

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EXAMINER

RHEE, JANE J

ART UNIT

PAPER NUMBER

1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

03/15/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

10/604,226

**Applicant(s)**

DOSHI, RAJIV

**Examiner**

Jane Rhee

**Art Unit**

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 22,23 and 25-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 22,23,25-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/5/2007 has been entered.

### ***Rejections Withdrawn***

2. The 35 U.S.C. 102(b) rejection of claims 22,23,25,27-28,31 anticipated by Minh has been withdrawn due to applicant's amendments filed on 2/25/2007.
3. The 35 U.S.C. 103(a) rejection of claims 24,26,29-30 unpatentable over Minh in view of Satake et al. has been withdrawn due to applicant's amendments filed on 2/25/2007.

### ***New Rejections***

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 22-23,25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minh (5788788).

As to claim 22, Minh discloses solid oxide fuel cell comprising an anode (figure 2 number 74), a cathode (figure 2 number 82) and an electrolyte (figure 2 number 76), the anode and cathode arranged on opposite sides of the electrolyte (figure 2 number 74,82,76), at least one of the anode and the cathode having opposite exposed (figure 2 number 78) and non exposed sides, the non exposed side being flat (figure 2 opposite side of 78) and the exposed side also being flat except for a plurality of discrete surface depressions formed therein on the exposed side thereof (figure 2 number 78), extending partially through the one of the anode and cathode (figure 2 number 74,82). As to claim 23, Minh discloses that the plurality of surface depression are formed in the exposed side of the anode (figure 2 number 74). As to claim 25, Minh discloses that the anode is substantially square (figure 2 number 74). As to claim 27, Minh discloses that the surface depressions have a depth of about 10-90% of the depth of the anode (figure 2 number 78 and 74). As to claim 28, Minh discloses that the anode has a thickness of 0.25-1mm (col. 3 line 61) as desired by applicant's claimed thickness of 0.3-2mm. As to claim 31, Minh discloses wherein the anode is comprised of a ceramic tape laminated onto the electrolyte (figure 2 number 82 cathode is the ceramic tape col. 2 lines 6-13 which is laminated onto the electrolyte number 76).

Minh teaches that any operable pattern for a selected fuel cell design can be embossed (col. 4 lines 8-9). Therefore, it would have been obvious matter of design choice to one having ordinary skill in the art at the time applicant's invention was made to provide round surface depressions, since such a modification would have involved a

mere change in shape. A change in shape is generally recognized as being within the level of ordinary skill in the art. In re Daily 149 USPQ 47.

As to claim 26, it would have been an obvious matter of design choice to provide Minh with an anode that is substantially round, since such a modification would have involved a mere change in shape. A change in shape is generally recognized as being within the level of ordinary skill in the art. In re Daily 149 USPQ 47.

As to claim 29-30, Minh discloses that the surface depressions have a depth of about 10-90% of the depth of the anode (figure 2 number 78 and 74) and that the anode has a thickness of 0.25-1mm (col. 3 line 61) as desired by applicant's claimed thickness of 0.3-2mm, therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Minh with surface depressions that have a depth of about 0.23mm in order to optimize the basic performance of the fuel cell in absence of unexpected results.

5. Claims 22-23,25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsu (5230849).

As to claim 22, Hsu discloses solid oxide fuel cell comprising an anode (figure 1c number 12), a cathode (figure 1c number 18) and an electrolyte (figure 1c number 16), the anode and cathode arranged on opposite sides of the electrolyte (figure 1c number 16), at least one of the anode and the cathode having opposite exposed (figure 2 number 12) and non exposed sides, the non exposed side being flat (figure 2 opposite side of 12) and the exposed side also being flat except for a plurality of discrete round surface depressions formed therein on the exposed side thereof (figure 5d number 22),

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extending partially through the one of the anode and cathode (figure 5d number 22). As to claim 23, Hsu discloses that the plurality of surface depression are formed in the exposed side of the anode (figure 5d number 22). As to claim 25, Hsu discloses that the anode is substantially square (figure 1c number 12). As to claim 27, Hsu discloses that the surface depressions have a depth of about 10-90% of the depth of the anode (figure 5d number 22). As to claim 28, Hsu discloses that the anode has a thickness of 0.25-2.5mm (col. 4 line 32) as desired by applicant's claimed thickness of 0.3-2mm. As to claim 31, Hsu discloses wherein the anode is comprised of a ceramic tape laminated onto the electrolyte (col. 4 lines 21).

As to claim 26, it would have been an obvious matter of design choice to provide Hsu with an anode that is substantially round, since such a modification would have involved a mere change in shape. A change in shape is generally recognized as being within the level of ordinary skill in the art. In re Daily 149 USPQ 47.

As to claim 29-30, Hsu discloses that the surface depressions have a depth of about 10-90% of the depth of the anode (figure 5d number 22) and that the anode has a thickness of 0.25-2.5mm (col. 4 line 32) as desired by applicant's claimed thickness of 0.3-2mm, therefore, it would have been obvious to one having ordinary skill in the art at the time applicant's invention was made to provide, Hsu with surface depressions that have a depth of about 0.23mm in order to optimize the basic performance of the fuel cell in absence of unexpected results.

### ***Response to Arguments***

6. Applicant's arguments filed 2/5/2007 have been fully considered but they are not persuasive.

In response to applicant's argument that Minh does not disclose round surface depressions as desired by claim 22, Minh teaches that any operable pattern for a selected fuel cell design can be embossed (col. 4 lines 8-9). Therefore, it would have been obvious matter of design choice to one having ordinary skill in the art at the time applicant's invention was made to provide round surface depressions, since such a modification would have involved a mere change in shape. A change in shape is generally recognized as being within the level of ordinary skill in the art. In re Daily 149 USPQ 47.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jane Rhee whose telephone number is 571-272-1499. The examiner can normally be reached on M-F 9-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Jane Rhee".

Jane Rhee  
March 13, 2007